

1 Ben M. Davidson (State Bar No. 181464)
2 ben@dlgla.com
3 DAVIDSON LAW GROUP, ALC
4 4500 Park Granada Blvd, Suite 202
Calabasas, California 91302
Office: (818) 918-4622
Fax: (310) 473-2941

5 David W. Long
6 longdw@ergoniq.com
(*pro hac vice* application pending)
7 ERGONIQ LLC
8 8200 Greensboro Dr. Suite 900
McLean, VA 22102
Office: (202) 847-6853

9 *Attorneys for Plaintiff DMF, Inc.*

10
11 **IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA**

12 DMF, Inc., a California corporation,

13 Plaintiff,

14 v.

15 AMP Plus, Inc. d/b/a ELCO Lighting,
16 a California corporation; and

17 ELCO Lighting Inc., a California
corporation,

18 Defendants.

19 Civil Action No. 2:18-cv-07090 CAS
(CJXx)

**Declaration of James R. Benya In
Support of Plaintiff DMF's Motion
for Preliminary Injunction**

Date: December 17, 2018

Time: 10:00 a.m.

Ctrm: 350 W. First Street, Room 8D

Judge Christina A. Snyder.

1 I, James R. Benya, hereby declare under penalty of perjury that the following
2 statements are true and correct to the best of my knowledge, and that, if called as a
3 witness, I could and would testify competently as follows:

4 1. I have been asked to render an independent professional engineering
5 opinion about whether or not, based on my knowledge and experience with lighting
6 devices and my review of relevant material, certain light emitting diode (LED)
7 products infringe U.S. Patent No. 9,964,266 (“the ‘266 Patent”), attached as Exhibit
8 2.

9 2. I am the Principal Illuminating Engineer and Lighting Designer for
10 Design Services, Inc.(DSI) dba the Benya Burnett Consultancy in Davis, CA. DSI is
11 a woman owned small business corporation owned by my wife, Deborah Burnett.

12 3. I am a registered professional engineer in the State of California
13 (E12078). My registration is current.

14 4. I have knowledge and experience in the general field of lighting in
15 buildings including degrees in electrical engineering and computer science, 45 years
16 of practical experience as a professional engineer and lighting designer, and
17 recognition by my industry evidenced by my election as a Fellow of the Illuminating
18 Engineering Society (IES) in 1991 and as a Fellow of the International Association
19 of Lighting Designers (IALD) in 2005. My practice is broad, as I provide private
20 and independent professional advice as the designer of lighting for buildings and
21 structures, lighting product designer, codes and standards developer, subject matter
22 expert research and consulting, peer reviewer, product development advisor, expert
23 witness on a variety of legal matters (see item 5., below), author of technical papers
24 and articles, college level educator and lecturer, and an active member of
25 committees of the IES and IALD. My product work has resulted in three patents for
26 lighting products in which I am named inventor, and I’ve made contributions to the
27 development of products of other inventors primarily in assisting them with
28 understanding the importance and value of their products and how to improve them

1 to enhance that value in the marketplace. My CV is provided as Exhibit 1 to this
2 declaration for more detailed review of my professional credentials and experience.

3 5. I have been accepted by over 100 court(s) as an expert and provided
4 testimony about the following:

- 5 a. Matters related to patent disputes; accepted in California, New York,
6 Texas, Georgia, Alabama and other states. My work included research
7 such as prior art and other issues, technical evaluation of products such
8 as performance and standards compliance, the development of written
9 opinions and reports and sworn testimony. In one case I assisted with
10 the development of a settlement. Products have included luminaires,
11 lighting controls, lamps (light bulbs) and lighting systems.
- 12 b. Matters related to product failures: accepted in Ontario (Canada),
13 Montana, California and New Jersey. My work included determination
14 of the cause of product failure resulting in damage or injury and
15 supporting evidence, written reports and sworn testimony.
- 16 c. Matters related to personal injury due to improper lighting application
17 and design practice: accepted in California, Arizona, Nevada,
18 Washington, Oregon, Michigan, and Illinois. My work includes field
19 measurements, photography, videography, accident re-enactment,
20 research, written reports and sworn testimony.
- 21 d. Matters related to criminal trials in Arizona and Ohio, including field
22 measurements, photography, videography, incident re-enactment,
23 research, written reports and sworn testimony.
- 24 e. Matters related to environmental impact studies, environmental
25 lawsuits, and related public review and acceptance of proposed projects
26 or existing disputes: accepted in California, Alberta (Canada), British
27 Columbia (Canada), Arizona, New Jersey, Michigan, Texas, Oregon,
28 Washington, Montana, Idaho, Nevada, Colorado, and Wisconsin.

1 f. Matters related to lighting-related construction disputes: accepted in
2 Hawaii, California, and Illinois.

3 g. Matters related to sports lighting: accepted in New Jersey, Maryland,
4 Virginia, California, British Columbia, Texas, Arizona, and Michigan.
5 My work includes field measurements, photography, videography,
6 accident re-enactment, research, written reports and sworn testimony.

7 6. In performing my analysis, I reviewed and considered the information
8 that I reference or cite herein, including the following:

- 9 • DMF's Complaint (Dkt. #1.0) and all exhibits filed with the Complaint
10 (Dkt. #1.1 to 1.21)
- 11 • ELCO's Amended Answer and Counterclaims (Dkt. #18.0) and all
12 exhibits filed with the Amended Answer and Counterclaims (Dkt.
#18.1)
- 13 • DMF's Answer to Amended Counterclaims (Dkt. #15)
- 14 • DMF DRD2M7930 Module and DRD2TRJDSWH trim
- 15 • U.S. Patent No. 9,964,266 ("the '266 Patent") (Dkt. #1.1) (Exhibit 1 of
the Complaint) (Production Nos. 266PAT 01 to 15).
- 16 • U.S. Patent Application Publication No. US 2015/0009676 (Dkt. #1.3)
(Exhibit 3 of the Complaint) (Production Nos. PUB976 01 to 08)
- 17 • File history for U.S. Patent Application No. 61/843,278 ("the '278
Application") (Production Nos. FH271APP 001 to 034)
- 18 • File history for U.S. Patent Application No. 14/184,601 ("the '601
Application") (Production Nos. FH266PAT 0001 to 1512)
- 19 • ELCO website page printout (<https://elcolighting.com/products/ell-led-module> (July 2018)) (Dkt. #1.11) (Exhibit 11 of Complaint)
- 20 • Specification Sheet for ELCO ELL LED Module
(<https://elcolighting.com/printpdf/products/ell-led-module> (Aug. 2018))
(Dkt. #1.14) (Exhibit 14 of Complaint)
- 21 • ELCO Installation Instructions for ELL LED Module (Dkt. #1.15)
(Exhibit 15 of Complaint)
- 22 • ELCO Flyer for ELL LED Module and Trims (Dkt. #1.16) (Exhibit 16
of Complaint)
- 23 • Specification Sheet for ELCO ELL4810 W Trim
(<https://elcolighting.com/printpdf/products/uno%E2%84%A2-4-diecast-round-reflector-trim> (Aug. 2018)) (Dkt. #1.17) (Exhibit 17 of
Complaint)
- 24 • Specification Sheet for ELCO ELJ4S Hanger Junction Box
(<https://elcolighting.com/printpdf/products/new-construction-fire-rated-junction-box-surface-mount-trim> (Aug. 2018)) (Dkt. #1.19) (Exhibit 19
of Complaint)

- 1 ● ELCO website page printout with information on ELCO ELJ4S
junction box (<https://elcolighting.com/products/new-construction-fire-rated-junction-box-surface-mount-trim> (July 2018)) (Dkt. #1.20)
(Exhibit 20 of Complaint)
- 2 ● ELCO E.L.L. LED Modules 1130 and 0827 (Physical Device)
- 3 ● ELCO 6813W Trim (Physical Device)
- 4 ● U.S. Patent No. 5,942,726 (Reiker)
- 5 ● U.S. Patent No. 6,491,413 (Benesohn)
- 6 ● U.S. Patent No. 8,201,968 (Maxik)
- 7 ● U.S. Patent No. 8,454,204 (Chang)
- 8 ● U.S. Patent Application Published No. 2009/0034261A1 (Grove)
- 9 ● U.S. Published Patent Application No. 2010/0302778A1 (Dabiet)
- 10 ● U.S. Published Patent Application No. 2011/0267828A1 (Bazydola)
- 11 ● U.S. Published Patent Application No. 2012/0140442A1 (Woo)
- 12 ● U.S. Published Patent Application No. 2013/0010476A1 (Pickard)

I. Directions and Assumptions

12 7. Counsel for DMF provided me with some directions in conducting my
13 review, which mainly concerned legal issues of patent law, as discussed below.

14 8. I was told that patent attorneys typically refer to a patent by its last three
15 digits. For example, the patent issue in this case is U.S. Patent No. 9,964,266 and
16 would be referred to as “the ‘266 Patent.” I use that convention here.

17 9. I also was told that patent attorneys often reference a specific place
18 within a patent by using the column and line numbers printed on each page. One
19 convention is to refer to places in the patent using the convention “C:L”, where “C”
20 is the column number and “L” is the line number. For example, a location at
21 Column 2, Line 1 of the ‘266 Patent may be cited as “266 Patent at 2:1.” I use that
22 convention here.

23 10. I was told that a patent is written and should be read from the view
24 point of a person skilled in the technical area to which the patent relates. For the
25 ‘266 Patent, I believe such a person would be an engineer working in the technical
26 area of recessed lighting for residential and commercial buildings.

27 11. I was told that a patent has two primary parts: a specification and the
28 patent claims. The patent claims are the numbered sentences at the end of the patent

1 that define the metes and bounds of what the patent covers. The specification is the
2 words and drawings of the patent that precede the patent claims and provides a
3 written description of the invention and different examples or “embodiments”
4 thereof.

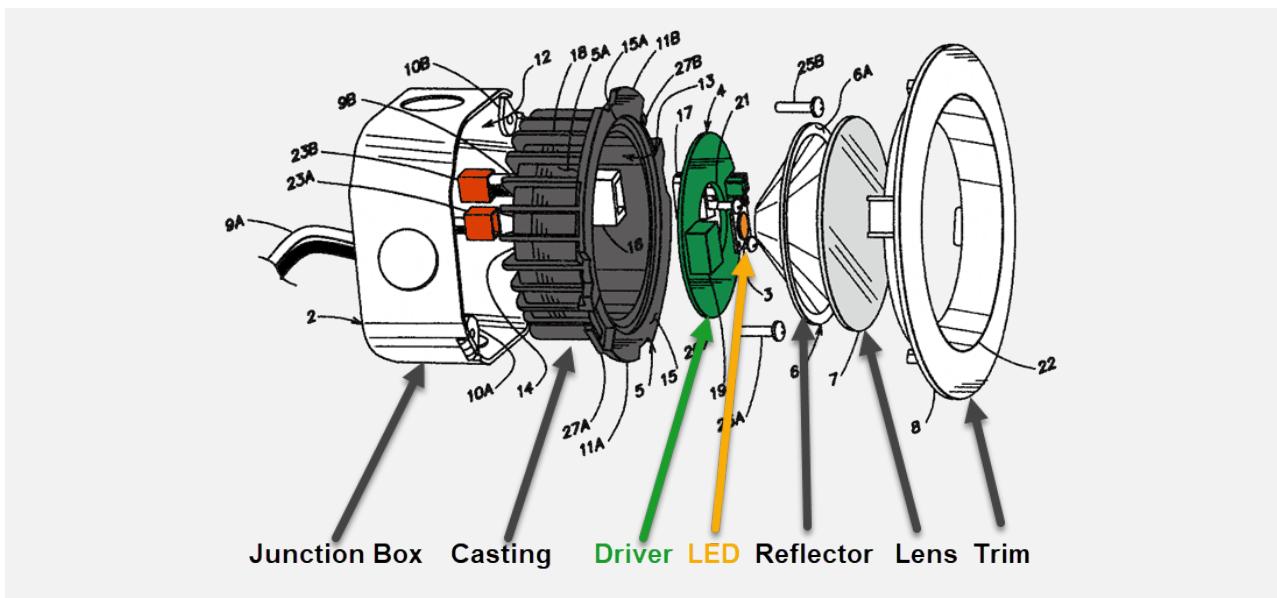
5 12. I was told that a patent has what is called a “file history”, which is back-
6 and-forth correspondence between the person applying for a patent (also called the
7 “patent applicant” or “patentee”) and the U.S. Patent & Trademark Office (also
8 called “the Patent Office” or “the PTO”). During the patent application process, one
9 or more examiners at the Patent Office may reject patent application claims for
10 different reasons, such as the patent application claims being unpatentable because
11 they read onto prior art patents or other references. The patent applicant may
12 respond by amending the claims, arguing why the claims are not disclosed by the
13 prior art or otherwise.

14 13. I was told that the terms used in patent claims should be interpreted
15 based on their ordinary meaning to a person skilled in the art as informed by the
16 patent specification and the patent file history.

17 14. I was told that a patent claim is literally infringed when every limitation
18 of the patent claim reads onto elements of the accused infringing device. Even if a
19 claim is not literally infringed because one or more limitations are not found in the
20 accused device, the patent claim may be infringed “equivalently” under what is
21 called the Doctrine of Equivalents. If a claim limitation is not met literally, it may
22 be met equivalently if there is no substantial difference between the claim limitation
23 and an element of the accused infringing device. A claim limitation may be met
24 equivalently if an element of the accused device performs substantially the same
25 function in substantially the same way to achieve substantially the same result as the
26 claim limitation.

II. The '266 Patent

15. I reviewed the '266 Patent and its file history. The '266 Patent, entitled "Unified Driver and Light Source Assembly For Recessed Lighting," concerns recessed lighting systems that are installed in a ceiling or a wall of a building.¹ Below is FIG. 1 of the issued '266 Patent as shown in the Complaint with color and labeling added, which illustrates one example (or "embodiment") of an LED module of the '266 Patent:



16. FIG. 1 shows a junction box 2 (labeled "Junction Box" in the image above), a light source module 3 (labeled "LED" in the image above), a driver 4 (labeled "Driver" in the image above), a unified casting 5 (labeled "Casting" in the image above), reflector 6 (labeled "Reflector" in the images above), a lens 7 (labeled "Lens" in the image above) and a trim 8 (labeled "Trim" in the image above).² I discuss each of these below.

A. Junction Box

17. The '266 Patent states that the junction box 2 in FIG. 1 is "a structure that separates the inner components of the recessed lighting system 1, including electrical wires/cables, from the items inside a ceiling or crawl space (e.g.,

27 1 '266 Patent at 1:12-46.
28 2 '266 Patent at 2:6-10.

1 insulation) in which the junction box 2 has been installed.”³ Further, the ‘266 Patent
 2 states that the junction box 2 “may receive electrical wires 9A from an electrical
 3 system (e.g., 120 VAC or 277 VAC) within a building or structure in which the
 4 recessed lighting system 1 is installed.”⁴ There may be “different sized junction
 5 boxes.”⁵ The ‘266 Patent states that the size of the cavity 12 of the junction box 2
 6 “may be pursuant to popular industry specifications for junction boxes” and
 7 provides, as an example, measurements of junction box 2 in FIG. 2 that has “a length
 8 of 3½ inches, a width of 3½ inches and a depth of 1½ inches.”⁶ The ‘266 Patent
 9 indicates that FIG. 2 shows an example of an industry specification for junction
 10 boxes or “a standard junction box.”⁷

11 18. Below is FIG. 2 of the ‘266 Patent as shown in the Complaint with
 12 color added, which shows one example of a standard-sized junction box called a
 13 “4/0”. It has mounting tabs with threaded holes 3.50” apart. The use of the junction
 14 box in construction is extremely common and regularly occurring. It is usually
 15 called a “lighting outlet box” because it is typically installed in ceilings or walls and
 16 a surface-mounted luminaire (lighting fixture) is attached directly to it. It is where
 17 the branch circuit providing power for the operation of the luminaire is connected to
 18 the wires or terminals of the luminaire, and the lighting outlet box either supports or
 19 helps support the luminaire. Other than luminaires or blank cover plates, there are
 20 few other common uses for the lighting outlet box, and they mostly involve wall
 21 mounted or ceiling mounted luminaires, lighting tracks, or some types of ceiling
 22 mounted apparatus such as clocks, smoke detectors, or sensors. A smaller outlet
 23 size, called “3/0” has mounting tabs with threaded holes 2.75” apart.

24
 25 ³ ‘266 Patent at 2:19-23.

26 ⁴ ‘266 Patent at 2:33-36.

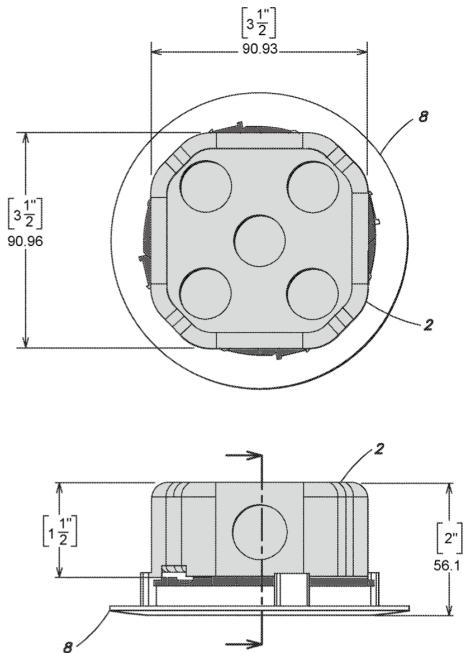
27 ⁵ ‘266 Patent at 2:16.

28 ⁶ ‘266 Patent at 3:3-9.

⁷ ‘266 Patent at 3:3-9, 5:1-2; 5:40-41.

1
2
3
4 **‘266 Patent FIG. 2**
5 **LED Module**

6 casting – dark grey
7 junction box – light grey
8 trim- white



9
10
11 19. The example junction box in FIG. 2 of the ‘266 Patent is known as a
12 trade-size 4/0, referring to approximately 4-inch diameter round or octagonal-shaped
13 junction boxes of different depths (e.g., 1-1/4", 1-1/2" or 2-1/8") that have two
14 threaded mounting screw holes spaced 3.50" apart. A trade-size 4/0 junction box is
15 shown in excerpts below of Table 314.16(A) from Article 314 of the National
16 Electrical Code (NEC) and Figure 3 of Clause 7.7.1 of Underwriters Laboratories
17 (UL) Standard for Safety for Metallic Outlet Boxes, UL 514A⁸:

18 314.16 ARTICLE 314—OUTLET, DEVICE, PULL, & JUNCTION BOXES; CONDUIT BODIES; FITTINGS; & HANDBOLES

19 Table 314.16(A) Metal Boxes

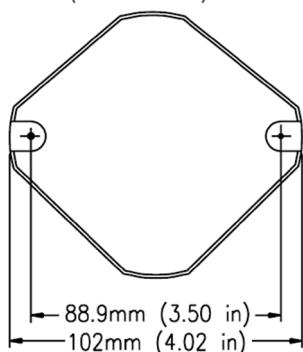
Box Trade Size		Minimum Volume		Maximum Number of Conductors* (arranged by AWG size)						
mm	in.	cm ³	in. ³	18	16	14	12	10	8	6
100 x 32	(4 x 1 1/4)	round/octagonal	205	12.5	8	7	6	5	5	2
100 x 38	(4 x 1 1/2)	round/octagonal	254	15.5	10	8	7	6	5	3
100 x 54	(4 x 2 1/8)	round/octagonal	353	21.5	14	12	10	9	8	4

23
24
25
26 ⁸ The UL 514 Standard was submitted to the Patent Office in the file history. ‘266
27 Patent File History at FH266PAT 1075, 1193-1298 (“UL 514A, Underwriters
28 Laboratories, Inc., February 16, 2004 (Title Page Reprinted August 10, 2007), 106
pages.”). Section 7.7.1 and Figure 3 are at FH266PAT 1225 and 1278, respectively.

1 7.7 Cover mounting hole-spacing

2 7.7.1 The cover mounting-hole spacing for trade sizes 4-11/16 square, 4 square, 4 octagonal, and 4
circular boxes shall be as indicated in Figures 1, 2, 3, and 4.

3 Figure 3
4 Mounting hole spacing for trade size 4 octagonal box
5 (See Clause 7.7.1.)

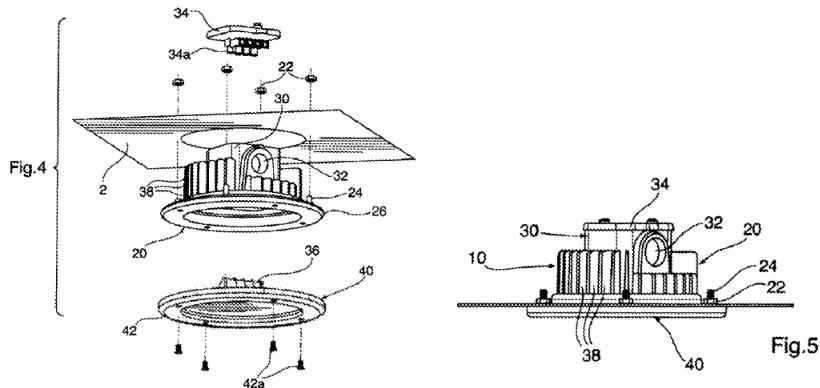


6 20. The '266 Patents states that the junction box 2 "may include one or
7 more tabs 10A, 10B for coupling the junction box 2 to the casting 5" and that "the
8 tabs 10A, 10B include holes for receiving screws or bolts 25A, 25B through the
9 corresponding elements 27A, 27B" of the casting 5.⁹

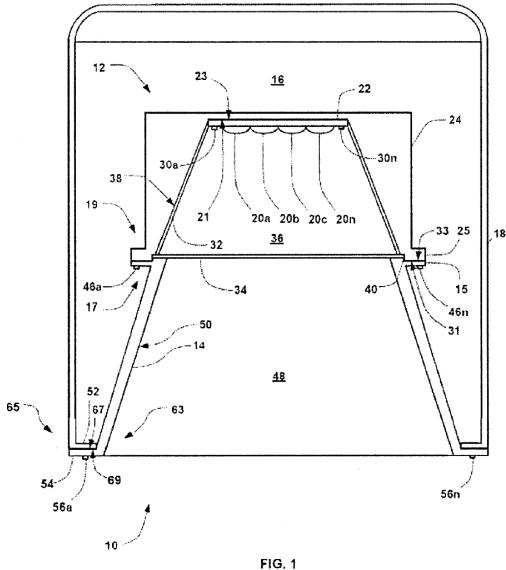
10 21. In the '266 Patent file history, when the Patent Office was examining
11 the patent application that issued as the '266 Patent, the patent applicant
12 distinguished a standard-sized junction box used for recessed lighting in a building
13 from what others may term a junction box in other contexts. For example, when
14 considering the Dabiet U.S. Patent Application Publication No. 2010/0302778
15 reference ("the Dabiet reference" attached as Exhibit 12) cited by the Patent Office,
16 the patent applicant distinguished a standard size junction box for recessed lighting
17 in a building that is the subject of the '266 Patent from what the Dabiet generically
18 called a "junction box 30" of no specified size for a lighting fixture attached to the
19 fume hood of a commercial cook top, as shown in FIGS. 4 and 5 of the Dabiet
20 reference below:¹⁰

21
22
23
24
25
26
27 ⁹ '266 Patent at 2:40-54.

28 ¹⁰ '266 Patent File History at FH266PAT 1059-62 (showing and discussing FIGS.
4 and 5 of the Dabiet reference).



22. The patent applicant also distinguished a standard size junction box for recessed lighting in a building from a conventional, incandescent bulb housing—“can 18”—shown in FIG. 1 of the Bazydola U.S. Patent Application Publication No. 2011/0267828 reference (“the Bazydola reference” attached as Exhibit 13), shown below.¹¹ This type of housing, often called a “can” in the US and a “pot light” in Canada, is not a junction box at all and the wiring connection is made in a junction box attached to its frame.



23. The patent applicant similarly distinguished a standard size junction box for recessed lighting in a building from the “can 26” of Chang U.S. Patent No.

27 ¹¹ ‘266 Patent File History at FH266PAT 0377 (showing and discussing FIG. 1 of the Bazydola reference).

1 8,454,204 (“the Chang reference” attached as Exhibit 10), as shown below in FIG. 3
2 of the Chang reference:¹²

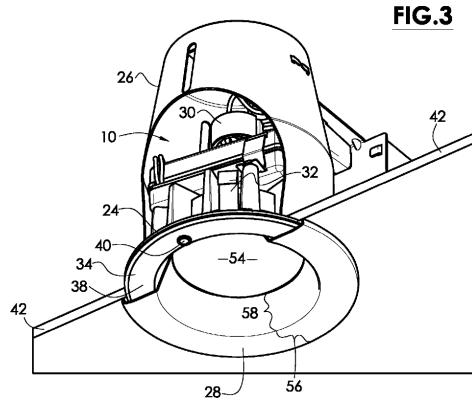


FIG.3

1 24. The patent applicant also distinguished a standard size junction box for
2 recessed lighting in a building from the “heat sink/housing 52” shown in FIGS. 11
3 and 12 of the Grove U.S. Patent Application Publication No. 20090034261 (“the
4 Grove reference” attached as Exhibit 11), shown below:¹³

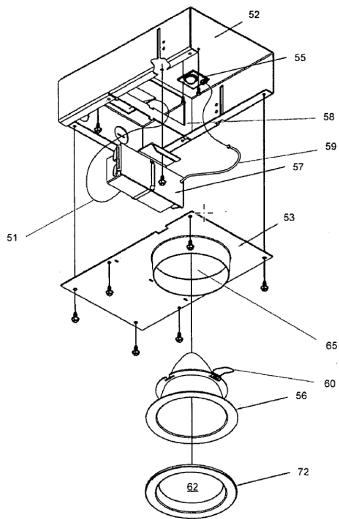


FIGURE 11

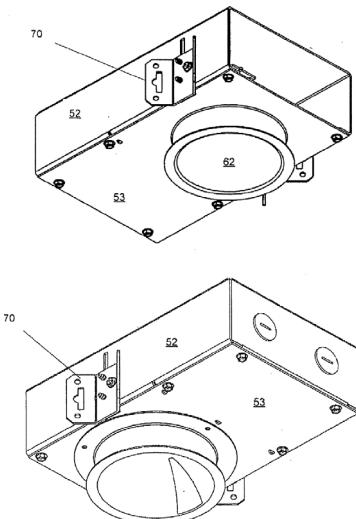


FIGURE 12

1 25. The patent applicant also explained that the standard size junction box
2 for recessed lighting in a building that is the subject of the ‘266 Patent is used “for
3 accommodating wire splices to building power,” stating:
4

12 ‘266 Patent File History at FH266PAT 1063-64.

13 ‘266 Patent File History at FH266PAT 0378-0379 (showing and discussing FIGS. 11 and 12 of the Bazydola reference).

Inventor Danesh explained that his assembly obviates the need for conventional sheet metal recessed fixtures that have both a “can” in which a lighting component is placed, and a separate junction box for accommodating wire splices to building power; instead, in Inventor Danesh’s assembly, only one “housing” [i.e., the junction box] is required for both the lighting components and wire splicing to building power.

In the single-housing solution provided by Inventor Danesh's innovative assembly, building wiring carrying the AC "mains" voltage may be coupled to the driver inside the unified casting via wire nuts or connectors inside the junction box, as illustrated in Fig. 1 of the present [patent] application.¹⁴

B. Light Source Module

26. The ‘266 Patent states that the light source module 3 can be a light emitting diode (“LED”).¹⁵ The ‘266 Patent states that “the light source module 3 receives electricity from the driver 4 . . . such that the light source module 3 may emit a controlled beam of light into a room or surrounding area.”¹⁶

C. Driver

27. The ‘266 Patent states that the driver 4 “is an electronic device that supplies and/or regulates electrical energy to the light source module 3 and thus powers the light source module 3 to emit light.”¹⁷ The ‘266 Patent states that the “driver 4 receives an input current from the electrical system of the building or structure in which the recessed lighting system 1 is installed and drops the voltage to an acceptable level for the light source module 3 (e.g., from 120V-240V to 36v-48V).”¹⁸ The driver 4 may include a board 20 formed in a “donut” shape with an opening 21, which allows the light source module 3 to directly contact the casting 5 to assist dissipating heat generated by the light source module 3 and allowing a more compact structure.¹⁹

¹⁴ ‘266 Patent File History at FH266PAT 1054-56.

¹⁵ ‘266 Patent at 5:17-24.

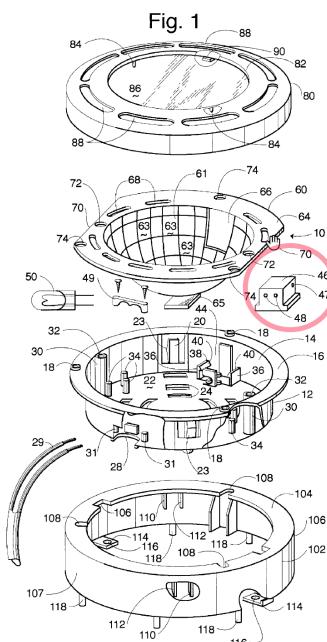
¹⁶ ‘266 Patent at 5:24-27.

¹⁷ ‘266 Patent at 4:21-24.

¹⁸ ‘266 Patent at 4:38-43.

¹⁹ '266 Patent at 4:53-5:3.

28. In the ‘266 Patent file history, the patent applicant distinguished the driver of the ‘266 Patent from the light bulb socket 46 of Benesohn U.S. Patent No. 6,491,413 (“the Benesohn reference” attached as Exhibit 8) that receives the two-prong connector of light bulb 50 powered directly by line voltage, shown below in FIG. 1 of the Benesohn reference.²⁰ In fact the light source used in the Benesohn patent is “a halogen 120 volt type T-4 glass shaped bulb with a type G-8 lamp base”²¹ commonly used in luminaires of the general style of the Benesohn reference, which are commonly referred to as “puck lights”.



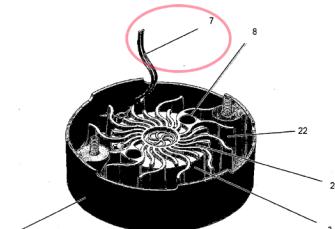
29. The patent applicant also amended the patent claims to state that the driver “includ[es] an electronic device to at least one of supply and regulate electrical energy to the light source module” to distinguish the driver from a “pair of electrical wires (29) . . . to provide source of line voltage” in the Benesohn reference that the Patent Office Examiner indicated could be a driver under the “broadest

²⁰ ‘266 Patent File History at FH266PAT 0307, 0491, 0515, 0524.

²¹ Benesohn Reference at 4:3-5.

1 reasonable interpretation” rule²² used by the Patent Office in examining claims of
2 pending patent applications.²³ The patent applicant explained that “a ‘driver’ as
3 recited in Applicant’s claims could not be fairly or properly construed merely as
4 ‘wires.’”²⁴ The patent applicant stated that “a driver cannot read on mere ‘wires’,”
5 that “adding this language to claim 1 is not necessary to arrive at a proper broadest
6 **reasonable** interpretation of the term ‘driver’,” and that the Patent Office Examiner
7 “has improperly interpreted the claim term ‘driver’ as a ‘pair of electrical wires’ in
8 Benesohn” under the broadest reasonable interpretation rule.²⁵ In fact, the light
9 source in the Benesohn reference is an incandescent lamp operating directly at line
10 voltage (120 volts), and such sources do not use a driver.

11 30. Similar to the Benesohn reference, the patent applicant also
12 distinguished the driver of the ‘266 Patent from a pair of wires that formed
13 “electrical connector 7” in the Grove U.S. Patent Application Publication No.
14 2009/0034261 (“the Grove reference” attached as Exhibit 11), as shown below in
15 FIG. 1 of Grove:²⁶



20 FIGURE 1
21
22

²² The Patent Office examiner indicated that this broadest reasonable interpretation rule was different than the rules used to interpret issued patent claims in court. ‘266 Patent File History at FH266PAT 1072.

²³ ‘266 Patent File History at FH266PAT 0417, 0469, 0473, 0479, 0481, 0512, 0514.

²⁴ ‘266 Patent File History at FH266PAT 0481.

²⁵ ‘266 Patent File History at FH266PAT 0486-88 (emphasis in original) and FH266PAT 0518-0521.

²⁶ ‘266 Patent File History at FH266PAT 0489-90, 0522-23.

D. Unified Casting

31. The '266 Patent states that the casting 5 may be a cylindrical structure, as in FIG. 1, or "any suitable shape, including an ellipsoid, cone, or polygon that is capable of housing the light source module 3 and the driver 4."²⁷

32. The '266 Patent states that the unified casting 5 may have a closed rear face 14 and an open front face 15a, where “[t]he closed rear face 14 allows the light source module 3 and the driver 4 to be securely mounted to the casting 5, while the open front face 15a provides an aperture to allow light emitted by the light source module 3 to be exposed to an outside environment surrounding the recessed lighting system 1 (e.g., into a room).”²⁸ The “rear face 14 of the casting 5 may include one or more mounting elements for receiving and securely holding the light source module 3 and the driver 4” such that they “may be securely coupled inside the cavity 13 on the rear face 14 of the casting 5.”²⁹ The unified casting also has a sidewall 5a.

33. The ‘266 Patent states that “the casting 5 may be any heat conducting structure.”³⁰ Further, “the casting 5 includes one or more heat sinks 18 to dissipate heat generated by the light source module 3 and/or the driver 4,” which heat sinks 18 may be “a set of fins surrounding the casting 5” and “may be composed of any thermally conductive material.”³¹ The ‘266 Patent states that casting 5 “dissipate[s] heat generated by the light source module 3.”³²

34. The '266 Patent states that the casting 5 has elements 27A, 27B that may be received by tabs 10A, 10B of junction box 2.³³ Screws or bolts 25A, 25B

²⁷ ‘266 Patent at 3:18-22.

²⁸ ‘266 Patent at 3:25-32.

²⁹ '266 Patent at 3:32-42.

³⁰ ‘266 Patent at 3:52-53.

³¹ '266 Patent at 4:5-19.

³² '266 Patent at 4:64-66.

³³ '266 Patent at 2:40-49

1 may be inserted through the elements 27A, 27B and into holes in tabs 10A, 10B of
2 junction box 2.

3 35. The '266 Patent states that casting 5 has twist and lock flanges 11A,
4 11B at the front-end face 15 end of the casting 5 that may be used to attach a trim 8
5 to the casting 5.³⁴

6 36. In the file history of the '266 Patent, the patent applicant distinguished
7 the unified casting of the '266 Patent as a "single-part solution" as compared to the
8 multipart housing and heatsink solution of the Pickard U.S. Patent Application
9 Publication No. 2013/0010476 ("the Pickard reference" attached as Exhibit 15).³⁵
10 The patent applicant indicated that the unified casting did not require having a
11 separate heat sink, stating:

12 The packaging of the light source module, the driver and the reflector
13 inside such a unified casting enables a "short" or low height module for
14 use as part of a recessed lighting system, but also giving the unified
casting sufficient bulk to act as a heat sink by itself and without
requiring a separate heat sink structure.

15 Applicant's claim 1 presents a unified, single-part solution in which the
16 unified casting plays a large role, namely as a one-piece housing for the
17 driver, the light source module and the reflector, while also acting as a
heat sink thereby eliminating the need for any additional heat sink
piece.³⁶

18 37. Based on the Patent Office examiner's suggestion, the patent applicant
19 amended claims to state a "heat conducting unified casting that significantly
20 dissipates heat generated by a light source module during operation."³⁷ The patent
21 applicant explained that this was a distinction over the housing in U.S. Published
22 Patent Application No. 2012/0140442A1 ("the Woo reference" attached as Exhibit
23 14), which the Patent Office examiners agreed "that Woo's housing is **not** heat
24 conducting and cannot significantly dissipate heat generated by light sources during

25 ³⁴ '266 Patent at 7:34-44.
26

27 ³⁵ '266 Patent File History at FH266PAT 0306.
28

³⁶ '266 Patent File History at FH266PAT 0305-06.

³⁷ '266 Patent File History at FH266PAT 1051, 1054.

1 operation.”³⁸ Similarly, the Patent Office examiners agreed that the Beneshon
2 reference “does not disclose or suggest a heat conducting unified casting.”³⁹

3 38. Based on a Patent Office examiner’s suggestion, the patent applicant
4 amended claims to state that “the light source module is closer to a closed rear face
5 of the casting than an open front face of the casting.”⁴⁰

6 **E. Reflector**

7 39. The ‘266 Patent states that the reflector 6 “may surround the light
8 source module 3 … to adjust the way light emitted by the light source is focused
9 inside a room or surrounding area.”⁴¹ The reflector may “surround[] the light source
10 module 3 and separate[] the light source module 3 from the driver 4,” which
11 “separation allows light from the light source module 3 to be emitted into a room or
12 surrounding area while further shielding the driver 4 from being exposed to the room
13 or surrounding area.⁴²

14 **F. Lens**

15 40. The ‘266 Patent states that the lens 7 may “provide[] a protective barrier
16 for the light source module 3” and “may also assist in the diffusion of light and
17 increase the uniformity of light over the surface of the recessed lighting system 1.”⁴³

18 **G. Trim**

19 41. The ‘266 Patent states that the trim 8 “serves the primary purpose of
20 covering the exposed edge of the ceiling or wall where a hole is formed in which the
21 recessed lighting system 1 resides while still allowing light from the light source
22 module 3 to be emitted into a room through an aperture 22.”⁴⁴ The ‘266 Patent states

23 ³⁸ ‘266 Patent File History at FH266PAT 1054 (emphasis in original).

24 ³⁹ ‘266 Patent File History at FH266PAT 1054.

25 ⁴⁰ ‘266 Patent File History at FH266PAT 1051, 1056-57.

26 ⁴¹ ‘266 Patent at 5:61-64.

27 ⁴² ‘266 Patent at 5:64-6:3.

⁴³ ‘266 Patent at 6:32-49.

⁴⁴ ‘266 Patent at 6:51-55.

1 that “different diameter trims 8 may be capable of being coupled to the casting 5”
2 and the “size and design of the trims 8 may depend on the size of the hole in which
3 the recessed lighting system 1 has been fitted and that the trim 8 must conceal, as
4 well as the aesthetic decisions of the consumer.”⁴⁵

5 42. The ‘266 Patent indicates that the trim 8 may be attached to the casting
6 5 “by interlocking with twist-and-lock flanges 11A, 11B formed integrally with” the
7 casting 5.⁴⁶

8 43. In the file history of the ‘266 Patent, the patent applicant distinguished
9 claims that required “a trim directly coupled to the unified casting” from the Pickard
10 reference “trim structure 130 … coupled to a retention ring 150, which cannot be
11 considered a unified casting,”⁴⁷ as shown in FIGS. 8 of the Pickard reference below:

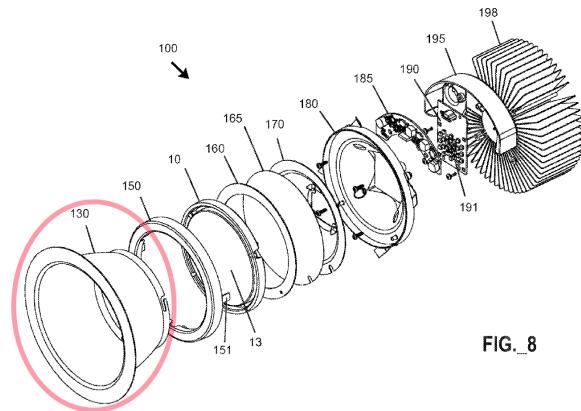


FIG. 8

18 III. ELCO Products

19 A. ELCO ELL LED Modules

20 44. I reviewed information about ELCO LED Modules, specifically
21 ELCO’s Model Nos. ELL0827 and ELL1130⁴⁸ (hereinafter “the ELCO ELL LED
22 Modules”).

25 ⁴⁵ ‘266 Patent at 7:1-6.

26 ⁴⁶ ‘266 Patent at 7:34-44.

27 ⁴⁷ ‘266 Patent File History at FH266PAT 0216.

28 ⁴⁸ The “08” indicates 850 lumens, “11” indicates 1100 lumens, and “xx” is a 2-digit number indicating the color temperature of the LED module.

1 45. Exhibit 3 of this declaration (which was Exhibit 11 of the Complaint)
2 shows some information that ELCO provides on its website for its ELL LED
3 Module, including an image of the ELCO ELL LED Module shown below that was
4 in the Complaint with labeling added:⁴⁹



14 46. I also reviewed physical ELCO ELL LED Modules, specifically ELL
15 1130 modules and an ELL 0827 modules. The 1130 modules are apparently named
16 “11” because they emit 1100 lumens and “30” because the color of the light
17 generated is 3000 Kelvin. The 0827 module is apparently named “08” because it
18 emits 800 lumens and “27” because the color of the light is 2700 Kelvin.

19 47. I disassembled one ELL1130 and reviewed the components therein.
20 The image shown above from ELCO’s website is consistent with the ELL1130 that I
21 disassembled with two main exceptions. First, the image above from ELCO’s
22 website shows the driver within a black enclosure that has an opening to show the
23 driver circuit within it. In the physical product I disassembled, the black enclosure is
24 fully enclosed. Second, the driver circuit board is potted and small components
25 could not easily be examined without removing the potting compound, which I did.

26
27
28 49 <https://elcolighting.com/products/ell-led-module> (July 2018).

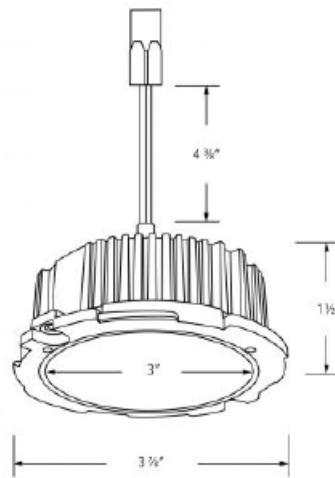
1 48. I also reviewed an ELL 1130 module where ELCO has attached a cover
2 resembling a hat to the rear end of the casting, held by a single screw. I was told that
3 this is “version 2”. My first impression was that ELCO may have added these pieces
4 to cure a heat dissipation defect in the module generation that I had disassembled. I
5 removed the hat, which is a .040” steel stamping, and discovered a cylindrical piece
6 of aluminum glued to the center of the rear housing atop the ELCO. The glued joint
7 between the aluminum casting and the cylindrical piece, and the lack of a secure
8 joint between the cylindrical piece and the hat, does not appear to be an efficient
9 thermal conductor, and therefore there is probably little or no apparent functional
10 advantage gained by adding the cylindrical piece and hat to the rear-end of the
11 casting of the LED Module. Below are images of this ELL1130 version 2 module
12 with the hat on the left and the first version of the ELL1130 Module on the right:



18 49. I reviewed a specification sheet for the ELCO ELL LED Module that
19 was downloaded from the ELCO website and provided as Exhibit 14 of the
20 Complaint and attached to this declaration as Exhibit 4.⁵⁰ Below is an image from
21 ELCO’s specification sheet that shows measurements of the ELCO ELL LED
22 Module, which image was also shown in the Complaint:

23
24
25
26
27
28 ⁵⁰ <https://elcolighting.com/printpdf/products/ell-led-module> (Aug. 2018).

1
2
3
**ELCO ELL
4 LED Module**
5
6
7
8



9 50. I compared the measurements above to the physical ELL Modules
10 version 1 and found them to be consistent with the image. However, the version 2
11 ELL module (with the hat) is 1.95" tall.

12 51. The maximum width of the closed rear end of the aluminum casting of
13 the ELCO ELL LED Modules is less than 3-1/2 inches. The outside width of the
14 sidewall of the aluminum casting of ELCO's ELL LED Modules, between the closed
15 rear end of the casting and a rim on the open front end of the casting, is less than 3-
16 1/2 inches wide. The aluminum casting of ELCO's ELL LED Modules, below an
17 outer rim at the open end of the casting, can fit within a standard junction box that is
18 3-1/2 inches wide and 2-1/8 inches deep (and 1-1/2 inches deep for Version 1).

19 52. The heat conducting casting of the ELCO ELL LED Module has
20 electrical wires passing through the closed rear face for supplying electrical energy
21 to the enclosed driver. The wires have a connector at one end that, during
22 installation of the LED Module in a building, can be connected to other wires that
23 provide electrical energy, such as 120-volt electrical energy supplied in residential
24 buildings or 277-volt supplied in commercial buildings in which the LED module is
25 installed.

26 53. The aluminum casting of the ELCO ELL LED Modules have a twist-
27 and-lock configuration at the open end of the casting that allows a trim to be attached
28 to the LED Module by a twist-and-lock connection.

B. ELCO Trims

54. I reviewed information and physical examples of trims that ELCO sells to be installed onto ELCO’s ELL LED Module using a twist-and-lock mechanism. For example, I reviewed Exhibit 5 attached to this declaration (which was Exhibit 16 of the Complaint), which is an ELCO flyer that was downloaded from ELCO’s website;⁵¹ an image from that flyer (shown below) illustrates installation of an ELCO twist-and-lock trim on an ELCO ELL LED Module:



ELCO Twist & Lock Trim

55. The ELCO ELL LED Module specification attached as Exhibit 4 of this declaration (Exhibit 14 of the Complaint) states that the ELL LED Module has a “Twist-lock design for toolless trim installation, for use with E.L.L. trims only.” Exhibit 6 of this declaration (which was Exhibit 17 of the Complaint) is a specification sheet downloaded from ELCO’s website⁵² that provides information on two of the ELCO Trims: ELL4810W and ELL4810BZ 4-inch trims (hereinafter “the ELL4810W Trim Specification”). The ELL4810W Trim Specification states that the trims have “Convenient twist-lock design for ease of installation.” The specification also instructs that the trims are for use only with the ELCO ELL LED Modules, stating the trims are “For use with E.L.L. LED Module only” and “Lamps: E.L.L. LED Module only (ELL08, ELL11).”

⁵¹ <https://elcolighting.com/sites/default/files/dl-resource/files/E.L.L Module ELFLY008.pdf> (Aug. 2018).

⁵² <https://elcolighting.com/printpdf/products/uno%E2%84%A2-4-diecast-round-reflector-trim> (Aug. 2018).

C. ELCO Products Infringe The '266 Patent

56. I was asked to review Claim 1 and its dependent Claims 2, 5, 7, 13, 15 and 16 of the ‘266 Patent and determine whether, in my opinion, those claims read onto the ELCO ELL LED Modules, literally or equivalently, when the claims are interpreted by a person of ordinary skill in the recessed lighting industry in light of the ‘266 Patent specification and the ‘266 Patent file history.

1. Independent Claim 1

1. A compact recessed lighting system, comprising:

57. This claim limitation is met literally by the ELCO ELL LED Modules.

58. The ELCO ELL LED Modules are part of a compact recessed lighting system.

a light source module for emitting light;

59. This claim limitation is met literally by the ELCO ELL LED Modules.

60. The ELCO ELL LED Modules have an LED light source module that emits light during operation of the module. Below is a photograph of the backside of the square-shaped LED module (circled yellow) that has grey thermal paste where it comes in contact to a protrusion (circled red) on the closed rear face of the unified casting; also below is a photo of the yellow center part on the front side of the LED module (yellow arrow):



a driver for powering the light source module to emit light, the

1 *driver including an electronic device to at least one of supply and
2 regulate electrical energy to the light source module;*

3 61. This claim limitation is met literally by the ELCO ELL LED Modules.

4 62. The ELCO ELL LED Module has a donut shaped driver with
5 electronics that supplies regulated power to the LED light source. This is shown in
6 the photo below where the driver has electronic components on a light-yellow-tan
7 colored printed circuit board with a hole in the middle where black plastic of the
8 housing enclosure protrudes:

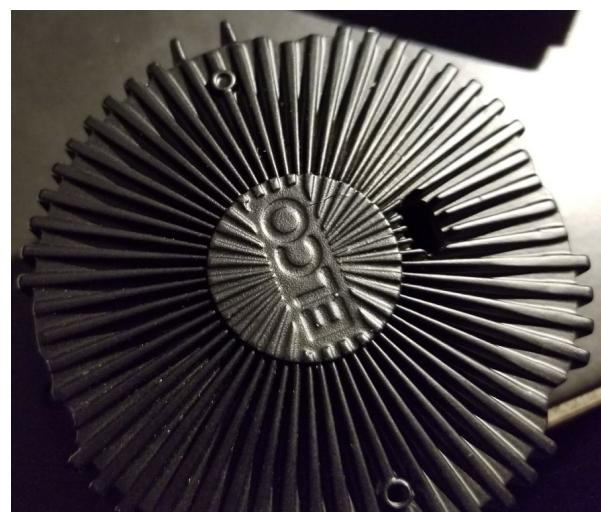
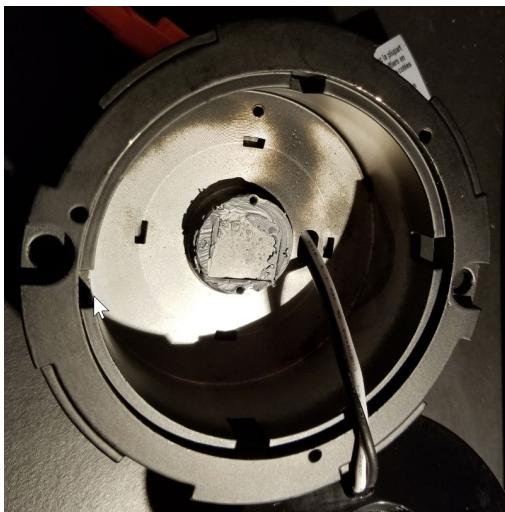


9
10
11
12
13
14
15 *a unified casting with a heat conducting closed rear face, a heat
16 conducting sidewall and an open front face wherein the heat conducting
17 sidewall is joined to the heat conducting closed rear face at one end
18 and defines the open front face of the unified casting at another end,
19 wherein the heat conducting sidewall has a first dimension between the
20 heat conducting closed rear face and the open front face of less than 2
21 inches and extends 360 degrees around a center axis of the unified
22 casting to define a first cavity that extends forward from the heat
23 conducting closed rear face to the open front face of the unified casting
24 and outward to the heat conducting sidewall, wherein the light source
25 module and the driver are positioned inside the first cavity while being
26 coupled to the heat conducting closed rear face of the unified casting
27 such that the light source module is closer to the closed rear face of the
28 unified casting than the open front face of the unified casting, and
 *wherein the unified casting includes a plurality of elements positioned
 proximate to the open front face so as to align with corresponding tabs
 of a standard junction box and thereby facilitate holding the unified
 casting up against the standard junction box when the unified casting is
 installed in the standard junction box; and**

25 63. This claim limitation is met literally by the ELCO ELL LED Modules.

26 64. The ELCO ELL LED Module has a heat conducting aluminum casting
27 with a closed rear face, an open front face and a cylindrical sidewall therebetween.
28 The sidewall and outside of the closed rear face, which have fins formed on them,

1 significantly dissipate heat generated by the LED light source during operation of the
2 LED Module. Below are photos of the inside and outside of the casting:



11 65. For the aluminum castings of the ELCO ELL LED Modules, the
12 maximum height from the outside of the closed rear face of the casting to the outside
13 of the open front face of the casting is less than 2 inches. For the ELCO LED
14 Modules I reviewed, that overall outside height of the casting is about 1.35";
15 accordingly, the distance from the inside of the close rear face to the open front face
16 is less than 2 inches. Further, some ELCO LED Modules that I reviewed (identified
17 as "Version 2") had an additional metal "hat" attached to the outside of the closed
18 rear face of the casting by a screw such that the overall height of the Version 2
19 devices are about 1.95"; but, of course, the dimensions of the casting itself remained
20 unchanged.

21 66. The ELCO ELL LED Module is provided fully assembled. As
22 assembled, the LED light source, driver, reflector and lens are positioned within the
23 aluminum casting. The LED light source is positioned closer to the closed rear face
24 of the aluminum casting than the open front face of the casting.

25 67. The aluminum castings of the ELCO ELL LED Modules has portions at
26 the open front face of the casting that can align with tabs of a standard junction box
27 to fasten the casting to the junction box – e.g., by inserting a screw through openings
28 in the portions of the LED Module casting that are aligned with holes in tabs of the

1 standard junction box. These portions of the casting are circled in yellow in the
2 photo below, which have holes 3.5" apart consistent with the holes in tabs of a trade
3 size 4/O junction box:



11 *a reflector positioned inside the first cavity of the unified casting
12 and coupled to and surrounding the light source module such that the
13 reflector directs light produced by the light source module into an area
14 surrounding the compact recessed lighting system while enclosing the
15 driver from exposure to the area surrounding the compact recessed
16 lighting system,*

17 68. This claim limitation is met literally by the ELCO ELL LED Modules.

18 69. The ELCO ELL LED Module has a reflector positioned inside the
19 aluminum casting that, during operation of the LED Module, reflects light emitted
20 from the LED light source out of the open end of the aluminum casting. Below is a
21 photo of the white reflector:



1 70. The reflector is coupled to and surrounds the LED light source such that
2 the reflector directs light produced by the LED light source into an area surrounding
3 the compact recessed lighting system while enclosing the driver from exposure to the
4 area surrounding the compact recessed lighting system.

5 *wherein the heat conducting closed rear face and the heat*
6 *conducting sidewall of the unified casting significantly dissipate heat*
7 *generated by the light source module during operation of the light*
8 *source module.*

9 71. This claim limitation is met literally by the ELCO ELL LED Modules.

10 72. The ELCO ELL LED Module aluminum casting closed rear face and
11 sidewall are heat conducting and significantly dissipate heat generated by the LED
12 light source during operation of the LED light source.

13 **2. Dependent Claim 2**

14 *2. The compact recessed lighting system of claim 1, wherein the*
15 *driver is donut shaped or "C" shaped.*

16 73. This claim limitation is met literally by the ELCO ELL LED Modules.

17 74. As discussed above, the ELCO ELL LED Modules meet the limitations
18 of Claim 1.

19 75. Further, the drivers of the ELCO ELL LED Modules are donut shaped.

20 **3. Dependent Claim 5**

21 *5. The compact recessed lighting system of claim 1, further*
22 *comprising:*

23 *a lens to shield the light source module while being transmissive*
24 *to light emitted by the light source module.*

25 76. This claim limitation is met literally by the ELCO ELL LED Modules.

26 77. As discussed above, the ELCO ELL LED Modules meet the limitations
27 of Claim 1.

28 78. The ELCO ELL LED Module has a lens at the open end of the
29 aluminum casting. The lens helps shield the LED light source from outside
30 contamination, such as when the LED Module is being handled for installation or
31 afterwards, while allowing light from the LED light source to pass through the lens

1 and into the room to be lit during operation of the LED Module. Below is a photo of
2 the lens:



3
4
5
6
7
8
9
10 **4. Dependent Claim 7**

11 *7. The compact recessed lighting system of claim 1, wherein the
heat conducting sidewall of the unified casting has heat sink fins formed
on its outside surface.*

12 79. This claim limitation is met literally by the ELCO ELL LED Modules.

13 80. As discussed, the ELCO ELL LED Modules meet the limitations of
14 Claim 1.

15 81. The heat conducting sidewall of the aluminum casting of the ELCO
16 ELL LED Modules has heat sink fins formed on its outside surface.

17
18 **5. Dependent Claim 13**

19 *13. The compact recessed lighting system of claim 1, wherein the
reflector separates the driver from the light source module such that the
reflector directs the light produced by the light source module into an
area surrounding the compact recessed lighting system while enclosing
the driver from exposure to the area surrounding the compact recessed
lighting system.*

20 82. This claim limitation is met literally by the ELCO ELL LED Modules.

21 83. As discussed above, the ELCO ELL LED Modules meet the limitations
22 of Claim 1.

23 84. The reflector in the ELCO ELL LED Modules separates the driver from
24 the LED light source such that the reflector directs the light produced by the LED
25 light source into an area surrounding the compact recessed lighting system while
26
27

1 enclosing the driver from exposure to the area surrounding the compact recessed
2 lighting system.

3 **6. Dependent Claim 15**

4 *15. The compact recessed lighting system of claim 1, wherein the
5 unified casting includes at least one twist-and-lock connector integrated
in the unified casting.*

6 85. This claim limitation is met literally by the ELCO ELL LED Modules.

7 86. As discussed above, the ELCO ELL LED Modules meet the limitations
8 of Claim 1.

9 87. A twist-and-lock connector is integrated in the aluminum casting of the
10 ELCO ELL LED Modules.

11 **7. Dependent Claim 16**

12 *16. The compact recessed lighting system of claim 15, further
comprising:*

13 *a trim directly coupled to the unified casting, for covering a hole
14 in a ceiling or wall of a building in which the compact recessed lighting
system is placed, wherein the trim connects to the unified casting via the
at least one twist-and-lock connector.*

15 88. This claim limitation is met literally by the ELCO ELL LED Modules
16 when a trim is coupled to it by the twist-and-lock connector.

17 89. As discussed above, the ELCO ELL LED Modules meet the limitations
18 of Claim 1.

19 90. The ELCO Trims are directly coupled to the ELCO ELL LED Modules
20 via a twist-and-lock connector. The trim covers a hole in a ceiling or wall of a
21 building in which the compact recessed lighting system is placed.

22 **8. Conclusion**

23 91. Based on the foregoing, it is my professional engineering opinion that
24 the ELCO ELL modules infringe Claim 1 of the '266 patent and its dependent
25 Claims 2, 5, 7, 13 and 15 and that Claim 16 is infringed when a trim is attached to an
26 ELCO ELL LED Module by the twist-and-lock connection.

1 Executed in Davis, California on November 13, 2018.
2
3
4
5
6



7 James R. Benya
8 PE, FIES, FIALD
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

Exhibits to Benya Declaration

Ex. No. Description

- 1James R. Benya Curriculum Vitae
- 2Certified Copy of U.S. Patent No. 9,964,266 (“the ‘266 Patent”) (Exhibit 1 of the Complaint).
- 3ELCO website page printout (Complaint Exhibit 11)
- 4Specification Sheet for ELCO’s ELL LED Module (Complaint Exhibit 14)
- 5ELCO Flyer for ELL LED Module and Trims (Complaint Exhibit 16)
- 6Specification Sheet for ELCO ELL4810W Trim (“the ELL4810W Trim Specification”) (Complaint Exhibit 17)
- 7U.S. Patent No. 5,942,726 (Reiker)
- 8U.S. Patent No. 6,491,413 (Benesohn)
- 9U.S. Patent No. 8,201,968 (Maxik)
- 10U.S. Patent No. 8,454,204 (Chang)
- 11U.S. Patent Application Published No. 2009/0034261A1 (Grove)
- 12U.S. Published Patent Application No. 2010/0302778A1 (Dabiet)
- 13U.S. Published Patent Application No. 2011/0267828A1 (Bazydola)
- 14U.S. Published Patent Application No. 2012/0140442A1 (Woo)
- 15U.S. Published Patent Application No. 2013/0010476A1 (Pickard)